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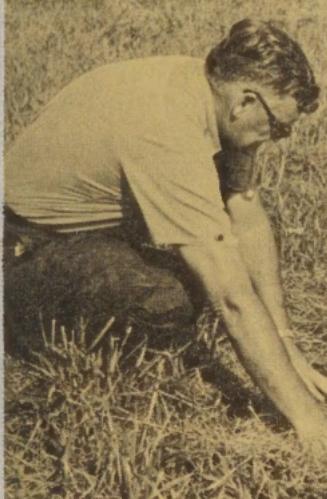


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HOW TO CONTROL WEEDS in BLACK WALNUT Plantings

Herbicides
Black Walnut



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Weeds are a serious problem to the grower of high-value trees such as black walnut. They compete with the planted trees for light, moisture, and nutrients. And in a race of this kind, the weeds usually win. Black walnut seedlings need weed control early in life to assure good growth and survival.

Two general methods can be used to control weeds in walnut plantations: chemical and mechanical. Chemical control is more effective and cheaper but is potentially hazardous to the environment and hence must be done with special skill and care.



Stunted walnut tree nearly hidden in brush above is same age as the larger one growing in the weeded spot below — graphic proof of the value of giving seedlings ample "elbow room."



CHEMICAL CONTROL

Selecting Chemicals

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No single herbicide works best in all situations. Your choice depends on weed species to be controlled and stage of plant growth. Two general types of herbicides have proved effective in walnut plantings: pre-emergent sprays, which are applied early in the spring before weed seeds begin to germinate; and post-emergent sprays, which are applied later, after "green-up." The pre-emergent treatment is recommended because the chemicals used, if applied properly, are least injurious to the planted walnut seedlings and generally control most weed species for a full season.

Some weed species are especially difficult to control with pre-emergent herbicides. Johnson grass, giant foxtail, fescue, nutgrass, morning glory, milkweed, and trumpet creeper are examples. Post-emergent herbicides may be needed to control these weed species, but consult your local agricultural advisor on the chemical to use.

Some states have restrictions on the use of certain herbicides. Check your state and local regulations. Also, because registration of herbicides is under constant review by the U.S. Department of Agriculture, consult your county agricultural agent or state extension specialist to be sure the intended use is still registered.

Methods of Application

If your land is fairly level and smooth and the trees uniformly spaced, you can use a farm-type boom sprayer and either broadcast the chemical or spray it in strips. In either case, spraying must be done before the trees are planted or while they are still dormant to avoid damaging them. But never spray a post-emergent herbicide directly on planted trees, even if the trees are dormant.

Broadcast spraying covers the entire area to be treated and leaves the cleanest plantation — all weeds are killed — but it uses the most chemical per acre. Do not broadcast spray on sloping land because this increases the chance for soil erosion. Also, do not spray near drainage ditches or water bodies.

Strip spraying is less expensive because less chemical is used. Moreover, there is less chance for soil to erode especially if the rows of trees follow the contours. In this method, the chemical is sprayed in strips along the rows of trees leaving untreated strips between the rows. Strips should be about as wide as the trees are tall but never less than 4 feet across.

Spot control is the cheapest, easiest, and most versatile method. This method requires the smallest amount of chemical and can even be used on rough sloping land and among irregularly spaced trees. Spot weed control involves merely spraying a circular area around each tree with a backpack sprayer. Here again the diameter of the circle should be at least 4 feet or about equal to the height of the tree.

Using Pre-emergent Herbicides

Simazine and atrazine are two pre-emergent herbicides that have given good weed control in test plantings with black walnut. Other pre-emergent herbicides may work equally well, but before using substitutes find out if they are safe to use in black walnut plantings; you could kill the trees along with the weeds.

The best time to apply simazine and atrazine is in March or April before "green-up" of weeds and grasses. One application the first year and another the second year are recommended for best survival and growth in new walnut plantings. A followup treatment with a post-emergent herbicide may also be needed each year for hard-to-control weed species.

Simazine 80W alone (8 ounces per 10 gallons of water) will control most weed species but a mixture with atrazine 80W is more effective on deep-germinating weed species. A recommended mixture is 4 ounces of simazine 80W and 4 ounces of atrazine 80W in 10 gallons of water. If your soil tends to be sandy, decrease the amount of simazine and atrazine by half; if your soil is heavy and contains much organic matter, increase simazine and atrazine by half. When using simazine or atrazine, sprayer must be equipped with mechanical agitators to prevent settling.

One hundred gallons of the above solution will treat 1 acre broadcast spraying. When strip or spot spraying, decrease the recommended amount of solution per acre in proportion to the actual amount of ground sprayed. For example, if your trees are spaced 8 feet apart and are 1 to 4 feet tall, you will spray 4-foot-wide strips separated by 4-foot untreated strips. So half the recommended amount of solution will cover an acre of plantation.

For spot spraying, apply at the rate shown below:

<i>If the trees are this tall (Feet)</i>	<i>Spray a circle of this diameter around each tree (Feet)</i>	<i>10 gallons of solution should treat this many trees (Number)</i>
1-4	4	350
5-8	6	155
9+	8	90

When spot spraying with a backpack sprayer, it is wise to practice first with a small quantity of solution. One gallon should treat about 35 4-foot circles. If you sprayed fewer spots before running out of solution, you sprayed too heavy. Check your spray rate often so that you get uniform application.

Pesticide Precaution

Pesticides used improperly can be injurious to man, animals, and plants. Follow the directions and heed all precautions on the labels.

Store pesticides in original containers under lock and key — out of the reach of children and animals — and away from food and feed.

Apply pesticides so that they do not endanger humans, livestock, crops, beneficial insects, fish, and wildlife. Do not apply pesticides when there is danger of drift, when honey bees or other pollinating insects are visiting plants, or in ways that may contaminate water or leave illegal residues.

Avoid prolonged inhalation of pesticide sprays or dusts; wear protective clothing and equipment if specified on the container.

If your hands become contaminated with a pesticide, do not eat or drink until you have washed. In case a pesticide is swallowed or gets in the eyes, follow the first-aid treatment given on the label, and get prompt medical attention. If a pesticide is spilled on your skin or clothing, remove clothing immediately and wash skin thoroughly.

Do not clean spray equipment or dump excess spray material near ponds, streams, or wells. Because it is difficult to remove all traces of herbicides from equipment, do not use the same equipment for insecticides or fungicides that you use for herbicides.

Dispose of empty pesticide containers promptly. Have them buried at a sanitary landfill dump, or crush and bury them in a level isolated place.

MECHANICAL CONTROL

Mechanical weed-control methods include cultivation, mowing, and mulching. In general, mechanical methods involve more work than chemical methods to achieve satisfactory weed control. Repeated followup treatments are usually needed during the growing season. Nevertheless, mechanical control may still be the best method for you, especially when:

- You already own cultivating or mowing equipment.
- Your plantings are located near streams, ponds, or food crops where it may not be safe to use certain chemical herbicides.

Cultivation is the most effective mechanical means of controlling weeds in a black walnut plantation. The first cultivating should be done right after "green-up" in the spring and repeated as often as necessary to keep the weeds from getting over 6 inches tall. Don't cultivate too deeply because you may cut the shallow feeder roots of your walnut trees. Also, avoid cultivating too close to the trees because the lower branches might be torn off. Careful spacing during planting plus early pruning will minimize this type of damage. A rototiller or disc harrow is the usual implement used.

Mowing reduces competition for light but it does not eliminate competition for soil moisture and nutrients. Weeds should be mowed short and as close to trees as possible and as often as needed during the growing season. Here again, be careful not to damage your trees.

Mulching as a form of mechanical control is practical only in small plantations. A 4-foot square of black plastic sheeting is split, placed around a tree, and staked to the ground. Tearing due to weather or animals will reduce its effectiveness. And plastic will sometimes cause heat-girdling damage. Sawdust and wood chips can also be used as mulch. Existing vegetation should be removed before mulch is put in place.

Walnut seedlings will not grow much the first year after planting regardless of the weeding method used. Do not interpret this as a failure. The trees are developing a root system and storing food. If you get a head start on the weeds with good control the first 2 years the growth of your trees from then on will reward your foresight.

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